CST1204: Introduction to Databases

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Week 4 Session 1

9/16/2019

Previous Session Review

- INSERT data

- Data Type and Data Storage

- Correct data mistakes
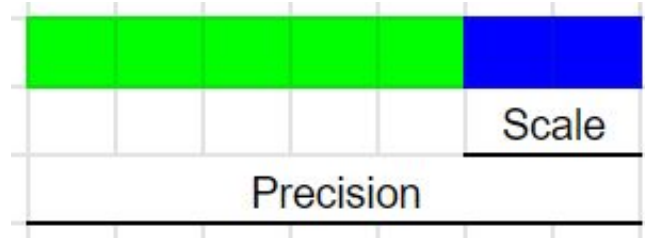
- Simple SQL statements

Previous Session Issues

- Always include primary key definitions

- INSERT INTO CHAR(n): Verify your data size.

- INSERT INTO DECIMAL(p,s): No single quote. Verify your data size.

  - Data type for zip code and Rep_Num

  - Oracle's handling of number-like text

- DATE: Requires using function to insert

Decimal

- No quote, no comma: 123, 12345.67

- DECIMAL(precision,scale)

  DECIMAL(7,2)

Scale

Precision

- Precision and scale limit
  - INSERT DECIMAL(7,2) with 123456.78
  - INSERT DECIMAL(7,0) with 123456.78

Homework Review

- Create shorthand representation for all TAL Distributors

  - Create CREATE statements for all tables

  - Create 1 INSERT statement + 1 SELECT for each table

- Chapter 2 exercise questions for TAL Distributors

  - Create shorthand representation for each exercise

  - Create CREATE statements for all changed tables

- Chapter 3 exercise questions for TAL Distributors

Hands-on

- Draw ERD for TAL Distributors
  - Note: Use crowfoot, not arrow

Agenda

- NULL and NOT NULL

- Database Design Example

NULL

- What is NULL (Ch 3 Pg 71): mid name, home phone
  - NULL is a special value to mark missing values, either non-existing or unknown
  - It is not: 0, empty string (''), 'NULL'
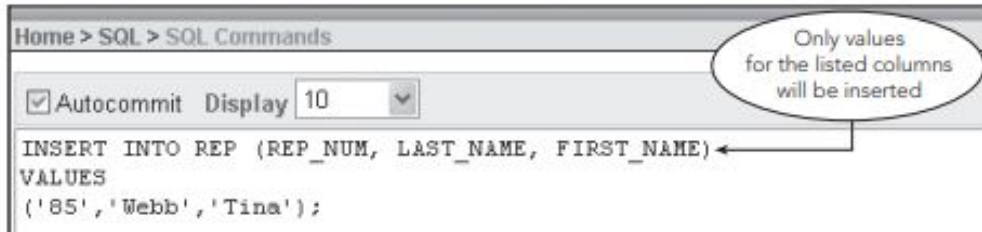
NOT NULL

- Can a primary key be NULL?

- NOT NULL in column definition (Ch 3 Pg 71)

  - After data type, before comma

  - Can have multiple NOT NULL in one table

  - Default is NULLable if without NOT NULL

```
CREATE TABLE CUSTOMER
(CUSTOMER_NUM CHAR(3) PRIMARY KEY,
CUSTOMER_NAME CHAR(35) NOT NULL,
STREET CHAR(15),
```

INSERTing NULL

- INSERT NULL by missing out column names (Ch 3 Pg 74)

- INSERT directly using the reserved word NULL

```
INSERT INTO REP VALUES ('45','Tian','Hui','1785 Tyler
Ave','Northfield',NULL,NULL,NULL,NULL);
```

INSERTing NULL

- Cannot INSERT into NOT NULL columns (including primary key)
- SQL Demo

Hands-on

- Create a new table REP_NOT_NULL definition with NOT NULL

- Try insert NULL into REP_NOT_NULL: Error handling

- Try insert NULL into REP, then:

  - Update

  - Delete and re-insert

Homework

- Review Chapter 2 Exercise Question 4 for TAL Distributors

- Create shorthand representation and CREATE, INSERT, SELECT statement for each table in Colonial Adventure Tours (Figure 1-4 to 1-8, Pg 9 - Pg 13)

- Chapter 2 exercise questions for Colonial Adventure Tours

Next Wednesday (9/25): TEST ONE

- Will give a scenario and ask you to

  - Normalize a bad design into 3NF

  - Identify entities and relationships and their primary key

  - Draw ERD

  - Write CREATE and DROP statements